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*csce750 — Analysis of Algorithms*  
*Fall 2019 — Syllabus*

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## **1 Course Personnel**

Instructor: Jason O’Kane (jokane@cse.sc.edu)

Teaching assistant: Hazhar Rahmani (hrahmani@email.sc.edu)

## **2 Webpage**

Information about the course, including scheduling information, assignments, and announcements, will be posted at this site:

<https://cse.sc.edu/~jokane/teaching/750>

## **3 Lectures**

Tuesdays and Thursdays, 11:40–12:55am, Innova 1400

## **4 Office Hours**

When?	Where?	Who?
Mondays, 2:00–3:00	Innova 1205	Rahmani
Tuesdays, 3:00–4:30	Innova 2229	O’Kane
Wednesdays, 2:00–3:00	Innova 1205	Rahmani
Thursdays, 3:00–4:30	Innova 2229	O’Kane

You may also stop by my office at other times —I am often, but not always, around and available to help— or make an appointment using the site linked from the course webpage.

## **5 Description**

**Official description** Algorithm design techniques; algorithms and data structures for sets and graphs; time and space complexity; sorting and searching; NP-complete problems.

**Content** The course emphasizes methods for analyzing algorithms. It includes a selection of specific algorithms that solve important problems, illustrate recurring algorithm design techniques, or both, along with an introduction to a set of tools, including the theory of NP-completeness, for establishing the hardness of algorithmic problems.

## **6 Prerequisites**

CSCE350 (Data Structures and Algorithms) or an equivalent undergraduate-level course on algorithms and data structures. I will refer to and build upon this background material throughout the semester.

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## 7 Textbook

**Required** T. H. Cormen, C. E. Leiserson, R. L. Rivest and C. Stein, *Introduction to Algorithms*, third edition, MIT Press/McGraw-Hill, 2009. (We will cover a substantial fraction the material in this book, which is considered to be a standard reference for algorithms. Homework problems will be assigned from it.)

**Recommended** M. R. Garey and D. S. Johnson, *Computers and Intractability: A Guide to the Theory of NP-Completeness*, Freeman, 1979. (This is the definitive book on NP-completeness, which we will cover in the final part of the semester. The book has remained remarkably relevant and accessible in the 40 years since its original publication.)

## 8 Evaluation and Grading

Your learning in this course will be evaluated based on the following measurements.

- Seven **homework assignments**, worth 10 points each. Homework grading will be based on a significant good faith attempt to solve the assignment problems correctly. In lieu of submitting solutions on paper, you should use the form linked from the course website to confirm that you have completed each assignment. Earning full credit for the homework requires making a significant good faith attempt to solve each problem. Late submissions cannot be accepted.
- Seven in-class **quizzes**, worth 40 points each. Dates for each quiz are listed on the course website. APOGEE students should make suitable arrangements to have their quizzes proctored *at the same time as they are administered on campus*.
- A **final exam**, on December 11, worth 200 points. APOGEE students should make suitable arrangements to have their final exam proctored *at the same time as they are administered on campus*.

Thus, a total of **550 points** will be available through the semester.

If your total score is  $x$  points, then your final grade will be  $g(x)$ , as defined below:

$$g(x) = \begin{cases} A & \text{if } x \geq 495 \\ B+ & \text{if } 467 \leq x < 495 \\ B & \text{if } 440 \leq x < 467 \\ C+ & \text{if } 412 \leq x < 440 \\ C & \text{if } 385 \leq x < 412 \\ D+ & \text{if } 357 \leq x < 385 \\ D & \text{if } 330 \leq x < 357 \\ F & \text{if } x < 330 \end{cases}$$

**Gradebook access** Grades will be posted on the CSE moodle server:

<https://dropbox.cse.sc.edu>

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It is your responsibility to verify that grades are correctly recorded on this site.

**Corrections and regrades** My goal is to ensure that all of the grading for this course is fair and correct. If you believe there's been a mistake in grading, please bring it to the instructor's attention in office hours within one week after the scores are posted. Regrade requests after one week will be politely declined.

**Important reminder** Keep in mind that I am grading your work, not you as a person.

**Deviations from the grading policy** I assume that every student takes the class intending to succeed, and I share that goal. However, requests for grade increases that are inconsistent with the stated grading scale will be politely declined. Here is an incomplete list of hypothetical requests from students that are **not sufficient** for me to deviate from the stated grading scale:

- *I need a GPA of at least \_\_\_ to get the internship I want.*
- *If my grade is less than \_\_\_, my parents will be disappointed in me.*
- *If my grade is less than \_\_\_, I won't be able to graduate.*
- *I've never gotten a grade as low as \_\_\_ before.*
- *I have too many other responsibilities.*
- *The course is too hard.*

## 9 Policies

**Attendance** The instructor will not keep detailed records of class attendance. However, your instructor will make every effort to ensure that class attendance is worth your time. Missed tests due to unexcused absences will result in a score of zero. In the instructor's experience, lack of class attendance has correlated strongly with poor grades.

**Cheating** Academic dishonesty undermines the educational mission of the course and reflects disrespect to your classmates and to your instructor. Therefore, you are expected to practice the highest possible standards of academic integrity. The academic penalty for cheating is a failing grade for the course. This policy includes all forms of academic misrepresentation. Details on university's academic integrity policies are available at

<http://sc.edu/academicintegrity>

**Collaboration** Assignments should be done independently. It is permissible to discuss the problems at a high level with your classmates, but you should work out the details and compose the complete answers independently. Submission of identical or substantially identical work will be considered strong evidence that cheating has occurred.

**Late assignments** Homework assignments cannot be accepted late, because solutions will be posted shortly after the deadline.

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**Mobile devices** Please silence any mobile devices before coming to class. If your phone rings in class, I reserve the right to answer it for you and take a message. Likewise, if my phone rings during class time, I will allow a student to answer it.

**Accommodations for disabilities** Any student with a documented disability should contact the Student Disability Resource Center to make arrangements for appropriate accommodations.

**Policy changes** Changes to the syllabus at the instructor's reasonable discretion, including changes to the evaluation and grading mechanisms, are possible but unlikely.